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ABSTRACT

Career decision making is an important aspect of life. At some point one must decide what type of job to apply for or whether to seek education for a specific career. Many individuals struggle with these decisions. Unfortunately, multidimensional measures of uncertainty are needed in providing guidance to such persons, because it appears the indecision phenomenon is multidimensional. The present study involved the development of a 97-item multidimensional measure of 6 career-indecision factors. Based on data provided by 364 college students, scale scores on the Career Assessment Diagnostic Inventory (CADI) had reliability coefficients ranging from 0.83 to 0.94. Factor analysis results were supportive of a conclusion that CADI scores are construct valid. These results suggest that the CADI has considerable potential as a multidimensional measures of factors thought to be related to career indecision. An appendix contains the items retained in the final CADI version. (Contains 9 tables and 58 references.) (Author/SLD)

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THE CAREER ASSESSMENT DIAGNOSTIC INVENTORY:
A SCORE RELIABILITY AND VALIDITY STUDY

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Career Assessment: Reliability and Validity -2-

Abstract

Career decision making is an important aspect of life. At some point one must decide what type of job to apply for or whether to seek education for a specific career. Many individuals struggle with these decisions. Unfortunately, multidimensional measures of uncertainty are needed in providing guidance to such persons, because it appears the indecision phenomenon is multidimensional. The presents study involved the development of a 97-item multidimensional measure of six career-indecision factors. Based on data provided by 364 college students, scale scores on the *Career Assessment Diagnostic Inventory* (CADI) had reliability coefficients ranging from .83 to .94. Factor analysis results were supportive of a conclusion that CADI scores are construct valid.

Career Assessment: Reliability and Validity -3-

Career decision making is an important aspect of life. At some point one must decide what type of job to apply for or whether to seek education for a specific career. Many individuals struggle with these decisions and seek the advice of career counselors. Although career decision making is an integral part of individual development, understanding the process of career decision-making of career counseling has perplexed researchers in the behavioral sciences for over 90 years.

Theorists and researchers have explored various components that influence career decision making. Some theorists have conceptualized the career decision making process in terms of developmental theory (Erickson, 1980; Super, 1952), psychodynamic theory (Brill, 1949; Roe, 1956), family systems theory (Bowen, 1978; Bowlby, 1982), attachment theory (Blustein, Prezioso, & Schultheiss, 1995), and social learning theory (Bandura, 1977; Taylor & Betz, 1983). Most empirical studies have evaluated career decision making in terms of the certainty an individual feels regarding career choice and the degree to which certain psychological factors contribute to difficulties in decision making.

The career development literature has increasingly recognized the *multidimensional* complexity of the career decision-making process (Blustein & Noumair, 1996). This movement towards a multidimensional approach has important implications regarding the diagnosis and interventions used in career counseling. Heppner and Hendricks (1995) and Miller (1996) have argued that career

counselors need to assess more than an individual's interests.

Lowman (1993) argued that the use of career assessments that solely focus on an individual's interest or ability could be considered malpractice. Osipow (1983) pointedly stated:

Among the concepts about career counseling that more or less go unchallenged is the notion that occupational information... facilitates occupational choice by better informing youth about the "facts" pertaining to careers. However..., how does this information accomplish the task of facilitating career choice? Under what conditions does it do so? Does occupational information provide useful data to all students at all times in the early stages of their career decision making? Are there circumstances in which occupational information obscures rather than enlightens students about careers? (p. 7)

It has been estimated that 15% of college students continue to be undecided even after receiving career information (Astin, 1975). Thus, examining the multiple factors that impact career decision making is imperative.

Hartman, Fuqua, and Jenkins (1988) advocated use of a multidimensional approach in examining the various career decision-making difficulties that individuals may experience. Specifically, Betz (1992) proposed that future studies should focus on "understanding of the nature of the dimensionality of the broader

context of career indecision" (p. 470). However, few studies have provided such a focus.

Numerous assessments have been developed to evaluate aspects of career decision making. Such assessments include unidimensional career decision scales such as the *Career Decision Scale*, and the *Career Decision Diagnostic Assessment* (Osipow, Carney, Winer, Yanio, & Koschier, 1976), and a limited number of multidimensional measures such as the *Career Factors Inventory* (Chartrand, Robbins, Morrill, & Boggs, 1990) and the *Career Thoughts Inventory* (Sampson, Peterson, Lenz, Reardon & Saunders, 1996). Additionally, there are instruments that assess psychological constructs related to career decision making such as self-efficacy (Taylor & Betz, 1983), vocational identity (Holland, Daiger, & Power, 1980), decision making style (Harren, 1979), and career locus of control (Trice, Haire, & Elliot, 1989).

However, very few of these measures incorporate a multidimensional approach to career decision making. Since theoretical models and empirical findings suggest that multiple factors are related to career decision making, it is important that assessment measures parallel these findings. As Fouad (1994) noted, "increasing our knowledge of vocational behavior will not occur until we realize that there are multiple factors influencing that behavior" (p. 157). Consequently, the career development literature may stagnate if studies are not conducted to examine the multiple influences upon career decision making.

Fortunately, Chartrand, Robbins, Morrill, and Boggs (1990)

initiated a journey examining the multidimensionality of career decision-making difficulties through the development of a multidimensional instrument titled the *Career Factors Inventory*. These authors sought "to develop a rationally derived instrument with a stable multiple-factor structure that contained items representing only one factor each" (Chartrand, Robbins, Morrill, & Boggs, 1990, p. 492).

Although the *Career Factors Inventory* illuminated the existence of multiple factors involved in career decision making, the Inventory did not include prominent factors that have been identified as important to career decision making. For example, Fouad (1994) argued for the incorporation of more familial factors that affect career decision making. Specifically, family systems theory postulates that enmeshed families often have poor boundaries, thus parents may fail to create independence for a child, thereby inducing career uncertainty for the child (Bowen, 1978). In this vein, Kinner, Brigman and Noble (1990) found that undergraduates from enmeshed families experienced difficulties in career decision making.

Other researchers have also noted that personality factors should be incorporated in a multidimensional approach (Lucas & Epperson, 1988; Walsh & Lewis, 1972). Crites (1981) stated that "career choice is largely an expression of the client's personality, whether defined as self-concept or needs. Choice problems [decision making problems] are essentially personality problems" (p. 10).

Additionally, Chartrand, Robbins, Morrill, and Boggs (1990) indicated that the four factor model they proposed in the *Career Factors Inventory* may not be the only appropriate model for assessing career decision difficulties. More specifically, they suggested that "the Career Factors Inventory scales do not represent all relevant symptoms of career indecision" (Chartrand, Robbins, Morrill, & Boggs, 1990, p. 499). Thus, studies that explore and assess other multidimensional models related to career decision making would further illuminate the dynamic process of career decision-making difficulties.

The purpose of the present research was to develop a multidimensional instrument that assesses multiple factors contributing to career decision making. Although the current literature in this area is replete with unidimensional measures, few multidimensional measures exist. Various theoretical constructs and empirical studies were used to create a measure with sound psychometric properties, research potential, and clinical applicability.

Existing Measures

As noted previously, there are several theories and empirical studies which espouse various factors that contribute to or impede the career decision-making process. Parallel to these studies are various measures that evaluate separate unidimensional and multidimensional constructs. A *Counselor's Guide to Career Assessment Instruments* presents an overview of approximately 300 career instruments (Kapes, Mastie, & Whitfield, 1994). The

majority of these instruments as cited in this text are composed of aptitude, interest, and developmental measures. There are relatively few instruments in the literature that address the specific multiple factors that affect decision making. Below is a review of five unidimensional measures and four multidimensional measures which measure factors that can impact career decision making.

Unidimensional Measures

Career Decision Scale (CDS). The Career Decision Scale developed by Osipow, Carney, Winer, Yanico, and Koschier (1976) has often been referred to as the preferred scale in the career indecision literature (Meier, 1991). Several articles have supported the notion that this inventory is a well developed scale (Harmon, 1985). The CDS contains 19 items that comprise two scales: a Certainty scale, and an Indecision scale. On the first 18 items respondents identify the degree of similarity they feel towards item stems by responding to four-point scales ranging from 1 ("not at all like me") to 4 ("exactly like me"). Item 19 is an open-ended question that allows respondents to further voice their concerns about career decision making. Individuals whose total score on the indecision scale range between 16 to 64 are described as career undecided.

Seven factor-analytic studies have been reported which examine the factor structure of the CDS (Slaney, 1988). Some studies report a four-factor structure while others report a two-factor structure (Shimizu, Vondracek, Schulenberg, & Hostetler, 1988).

However, Osipow recommended use of a total score approach "because of the unreliability of the factors across various studies" (Osipow, 1980, p. 2).

The Assessment of Career Decision Making (ACDM). The *Assessment of Career Decision Making* is a 94-item inventory that focuses more on an individual's decision making style which includes scores on scales measuring: rationality, intuitiveness, and dependence (Harren, Buck, & Daniels, 1985). Sharf (1994) stated that the ACDM can be used as a screening instrument for counselors or for "practical career-planning issues" (p. 252). Unfortunately, there is limited published data available on this instrument.

Career Decision Diagnostic Assessment (CDDA). The CDDA was developed by Sklare (1985) as a self-report instrument that also measures individuals' career decision making styles. Originally, the CDDA was developed to help college students resolve career decision-making difficulties.

The CDDA consists of 37 items with five scales: life/goal awareness (LGA), decision anxiety (DA), secondary gain (SG), authority orientation (AO), and luck/fate orientation (LFO). The LGA scale measures the degree of insight a person possesses in regard to what he or she wants or needs out of life. The DA scale is the degree of internal struggle an individual has about making a career decision. The SG scale is the advantage an individual feels by not making a career decision. The AO scale is the degree to which an individual desires an authority figure to make the

career choice. Lastly, LFO is the degree to which an individual places value in fate when determining a career (Larson, Busby, Wilson, Medora, & Allgood, 1994).

Although this measure is a step towards examining personality-style barriers to career decision making, current empirical studies have resulted in low reliability and validity coefficient estimates for CDDA scores (Larson, Busby, Wilson, Medora & Allgood, 1994; Sklare, 1985). Additionally, this measure solely examines a unidimensional construct of decision making style, notwithstanding the presence of subscales.

Career Decision Making Self-Efficacy Scale (CDMSES). Taylor and Betz (1983) developed an instrument to determine an individual's perceived level of competence in various career tasks. Such tasks include accurate self-appraisal, gathering occupational information, goal selection, making plans of the future, and problem solving. Taylor and Betz tested the CDMSES with 153 students in one group, and 193 college students in the second group, for a total of 346 people in the sample. In addition to the sample study collected by Taylor and Betz, two additional studies by Luzzo (1995, 1996) have examined the psychometric properties of the *Career Decision Making Self-Efficacy Scale*.

Various score reliabilities were reported (Taylor & Betz, 1983), including an internal consistency reliability coefficient for the total group of .97. Overall, this instrument appears to produce fairly consistent results across studies and may measure the unidimensional construct of self-efficacy fairly well.

Career Locus of Control Scale (CLCS). This measure contains 18 items that measure attitudes toward career planning. Unfortunately, published research on this measure is non-existent. Trice, Haire and Elliot (1989) presented only a description of this instrument.

KR-20 statistics for the sample data were reported to be .89 for women and .84 for men. A test-retest reliability coefficient of .93 was reported for a sample of 40 subjects. In the initial test sample (n=100), Trice, Haire, and Elliot (1989) reported a correlation of .52 with Rotter's (1966) *Locus of Control Scale* as a construct validity statistic.

Due to the limited empirical research available on this instrument, an adequate assessment of this measure can not be made. Indeed, the measurement of locus of control has itself been wrought with psychometric controversy (cf. Byrne & Gavin, 1996; Marsh, 1990; Marsh & Richards, 1987).

Multidimensional Measures

My Vocational Situation (MVS). *My Vocational Situation* is one of a few measures that examines vocational identity, level of occupational information, and barriers to career decision making (Holland, Daiger, & Power, 1980). This instrument contains 20 items which are dichotomously scored.

The occupational information score is based on four statements, the barrier score is based on four statements, and the vocational identity score is derived from 18 items. As one might expect, the vocational identity score appears to result in the

highest reliability coefficient. The KR-20 for college males on the barriers scale was .45, on the occupational scale .79, and on the vocational identity scale .89. For high school students the reliabilities for the barrier and occupational scale scores were even lower. Although this instrument shows some strengths, and this multidimensional measure is a step towards combining various factors that can affect career decision making, the vocational identity scale seems to be the subscale with the most statistical support (cf. Leong & Morris, 1989; Lucas, Gysbers, Buescher, & Heppner, 1988).

The Career Decision Profile (CDP). The *Career Decision Profile* is a revision of the *Vocational Decision Scale* and consists of three dimensions: decidedness, comfort and reasons. Jones' (1989) revision of the VDS primarily involved adding a scale measuring the reason for career indecision. Within this dimension the subscales include: self-clarity, knowledge about occupations, and career choice importance.

There are only two published studies on this instrument. One compared the factor structure of the CDP to the CDS and CFI (Stead & Watson, 1993). Jones' (1989) study presented the revised instrument and reliability and validity coefficients. Alpha coefficients for the three dimensions were .85 for the decidedness scale, .82 for the comfort scale, and .69 for reasons (Jones, 1989).

Career Thoughts Inventory (CTI). This inventory (Sampson, Peterson, Lenz, Reardon & Saunders, 1996) assesses different

dysfunctional thinking patterns related to career decision making. The CTI gives a single indicator of dysfunctional thinking and scores on three construct scales: decision making confusion (14 items), commitment anxiety (10 items), and external conflict (5 items). Decision-making confusion was defined as the inability to make a decision due to overwhelming emotions (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996). Commitment anxiety was defined as generalized anxiety and external conflict was defined as the inability to balance one's own wishes with someone else's desires.

Approximately 595 college students participated in the norming sample. For the standardization sample, the mean internal consistency for the scale scores was reported as .86, and the test-retest correlation for the CTI total score was .71. The individual alphas for internal consistency for the scale scores were .90 for decision making confusion, .79 for commitment anxiety, and .74 for external conflict.

Although this instrument includes many of the cognitive factors that can lead to career decision making difficulties, once again the external factors and psychological factors lack clear definition and uniformly sound measurement. Additionally, this instrument only focuses on three factors that impact career decision making. Since this instrument is relatively new, published empirical literature on this instrument is unavailable.

Career Factors Inventory (CFI). This instrument was originally developed in 1990 by Chartrand, Robbins, Morrill, and Boggs. The CFI is a four-factor instrument that examines two information

factors and two personal-emotional factors related to career indecision. The authors used a rational approach to develop the CFI. The two information factors are the need for career information (NFCI) and the need for self-knowledge (NFSK), whereas the two personal-emotional factors are labeled career choice anxiety (CCA) and generalized indecisiveness (GI).

Initially, Chartrand, Robbins, Morrill, and Boggs (1990) developed a five-factor model including self-esteem, career choice anxiety, generalized indecisiveness, need for career information, and need for self-knowledge. In a confirmatory factor analysis study, a coefficient of determination for the five-factor model was .997, from which the researchers concluded that a large amount of the item variances was explained by the five factors. The correlations for the items on the first factor ranged from .51 to .85 for the first factor, ".47 to .75 for the second factor, .41 to .65 for the third factor, and .70 to .78 for the fourth factor" (Chartrand, Robbins, Morrill & Boggs, 1990, p. 496).

As the authors had proposed, the correlations between the personal and informational factors was relatively low (average $r = .33$), while the correlations among the informational and personal-emotional factors were moderately high ($r = .66$, $r = .61$). All items had a statistically significant correlation with the predicted factors. However, the model goodness-of-fit indices were not deemed satisfactory, so the authors conducted an exploratory analysis and found that a four-factor model with 21 items yielded a coefficient of determination of .996, and all goodness of fit

indices improved. Coefficient alphas ranged from .73 to .86 for the subscale scores.

Lewis and Savickas (1995) examined concurrent validity by evaluating the *Career Factors Inventory* with the *Career Choice Status Inventory*, the *Vocational Identity Scale*, and the *Career Development Inventory*. They found statistically significant correlations between the CFI and the CCSI ($r = -.50$), VIS ($r = -.65$), and CDI (r ranged from .20 to .41 for the four scores). Once again, due to the recent publication of this instrument, relatively few studies have examined the CFI's psychometrics or relationship to career decision making behaviors.

Summary

The *Career Factors Inventory* appears to be the best assessment measure that can aid counselors in helping clients to focus on specific aspects of career decision-making difficulties. However, since the CFI is relatively new there is opportunity for evaluation and additional research to examine additional factors which may impact career decisions (Chartrand & Robbins, 1991).

The present study extends the work of Chartrand, Robbins, Morrill and Boggs (1990). In the present study a multidimensional instrument which includes several components of the previous measures plus some new constructs was developed. This measure--the *Career Assessment Diagnostic Inventory* (CADI)--incorporates several of the major factors cited in the literature into a single multidimensional measure. While Chartrand, Robbins, Morrill and Boggs proposed a four-factor model, Appel, Haak, and Witze (1970)

proposed a six-factor model which included: anxiety, data-seeking orientation, self-identity, generalized anxiety, multiple interests, and humanitarian orientation. Thus, the present study explored the factors that appear to be most pertinent and salient to career decision making based upon previous literature and developmental models.

Results

Participants

The participants in the study were 364 college students. The mean age was 20.92 years ($SD = 2.25$). There were more females (84.7%) than males in the study. The participants were primarily Caucasian (84.8%), although Hispanics (10.0%) and African Americans (3.3%) were also represented, in addition to Asian Americans and others. The sample included freshmen (10.8%), sophomores (8.6%), juniors (44.7%), and seniors (35.0%), and others (.8%).

Instrumentation

Based upon a review of the previous literature which cited family conflict, emotional attachment, decision-making ability, external locus of control, need for career information, career locus of control, decision-making anxiety, and self-efficacy as factors contributing to career decision making difficulties, these eight constructs were used as a test-specification framework for initial item development. Item construction for the CADI consisted of an item construction process similar to that outlined by Crocker and Algina (1986).

The senior author created 30 original statements for each

proposed construct by reviewing the literature and previous instruments which purported to measure similar constructs. On each scale, some items were worded in opposite directions so as to minimize response set influences. Items were also reviewed by two counseling psychology doctoral students.

Once the 30 statements had been generated for the eight proposed constructs, the statements were transformed into a Likert scale response format. The Likert scale responses ranged from a score of 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The items were randomly ordered into the pilot questionnaire with a total of 240 (8 x 30) items.

Results

The 240 items were subjected to classical measurement theory analyses designed to identify a manageable (roughly 15) number of items per scale that would yield scores that were reasonably reliable and valid. Items from the pool were selected on the basis of highest "corrected" item discrimination coefficients (Thompson & Levitov, 1985) and the largest factor pattern/structure coefficients (Thompson, 1997; Thompson & Daniel, 1996).

Table 1 presents descriptive statistics and use of the potential score range by the 97 items retained on this basis. Tables 2 through 7 present the item analysis and scale alpha coefficients (Reinhardt, 1996) for the 97 items retained to measure the six constructs named in the table titles.

INSERT TABLES 1 THROUGH 7 ABOUT HERE

Regarding factor analysis, Gorsuch (1983, p. 350) has noted that, "A prime use of factor analysis has been in the development of both the operational constructs for an area and the operational representatives for the theoretical constructs." Similarly, Nunnally (1978) has noted that "factor analysis is intimately involved with questions of validity.... Factor analysis is at the heart of the measurement of psychological constructs" (pp. 112-113). Table 8 presents the varimax-rotated factor pattern/structure coefficients (Thompson, 1997; Thompson & Daniel, 1996) for the retained items.

INSERT TABLE 8 ABOUT HERE

Table 9 presents the correlation coefficients among the six scale scores. The scale scores were also correlated with responses to two questions asked on a demographic questionnaire. The first question asked the 364 students how certain (1 = "unsure" to 4 = "very sure") they felt about their majors. The second question asked whether the students were planning to change their majors (0 = "no", 1 = "yes").

INSERT TABLE 9 ABOUT HERE

Discussion

The results reported here suggest that the 97-item Career Assessment Diagnostic Inventory (CADI) has considerable potential as a multidimensional measure of factors thought to be related to

career indecision. As indicated in Table 1, on the six scales the 364 students tended to use the full possible range for the scale scores; such dynamics tend to maximize score variance (Reinhardt, 1996; Vacha-Haase, 1998). The most noteworthy exception involved scores on the Career Decision Making Self-Efficacy scale, on which scores ranged from 53 to 90, when the possible score range was 18 to 90, indicating strong feelings of perceived self-efficacy within the sample.

As reported in Tables 2 through 7, the scale scores tended to be reasonably reliable. The alpha coefficients ranged from .83 for the Identity Development/Secure with Self scores to .94 for the Decision Making Anxiety scores.

As reported in Table 8, scale scores tended to be reasonably independent. Noteworthy exceptions were the correlations between Identity Development/Secure with Self and (a) Decision Making Anxiety ($r = -.53$), (b) Conflictual Independence/Familial Relationships ($r = -.47$), and (c) Career Decision Making Self-Efficacy ($r = .38$). Thus, more secure students had less anxiety, less conflictual relationships, and felt greater self-efficacy.

There were also noteworthy relationships between Decision Making Anxiety and (a) Need for Career Information ($r = .46$) and (b) Conflictual Independence/Familial Relationships ($r = .37$). Thus, students who felt more anxious felt greater needs for information and perceived they had more conflictual relationships.

As regards intent to change majors or uncertainty about major, the largest correlations were with scores on the CADI Decision

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Making Anxiety scale. Students who intended to change majors ($r = .51$) or felt less sure about the major ($r = -.68$) had felt anxiety. Students who felt a greater Need for Career Information also were more likely to intend to change majors ($r = .29$) and less sure about the major ($r = -.35$). Students who felt they had less Identity Development/Security with Self were more likely to intend to change majors ($r = -.23$) and less sure about the major ($r = .33$).

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Table 1
Descriptive Statistics and Use of Potential Score Ranges

Variable	Mean	SD	Actual		Possible	
			Minimum	Maximum	Items/Minimum	Maximum
DMANX	33.29	11.62	15	68	15	75
CARINFO	53.82	9.63	22	75	15	75
CONFLICT	29.69	8.31	16	58	15	75
SE	76.51	6.49	53	90	18	90
EMOT	57.55	10.29	23	84	19	95
IDENTITY	60.64	7.63	33	75	15	75

Note. If items were normally distributed and used the full possible score range, the SD would be approximately the range (e.g., 75 - 15 = 60) divided by 6 (e.g., 60 / 6 = 10), since 99% of the scores in a normal distribution fall within 6 standard deviations.

Table 2
Reliability Analysis for
Decision Making Anxiety Scores (15 items)

Item	Item Analysis Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Discrimination	α if Item Deleted
Q3	31.3177	116.1328	.7357	.9308
Q11	31.2378	115.1239	.6971	.9321
Q31	30.9926	114.5290	.7840	.9294
Q55	31.4852	121.9485	.6463	.9334
Q63	31.0484	117.3576	.7619	.9303
Q71	30.6335	118.0129	.6019	.9348
Q87	31.0505	118.2567	.7440	.9309
Q091	30.6676	117.1682	.6138	.9346
Q0143	31.1331	120.0842	.6875	.9323
Q0147	31.3122	122.0973	.5683	.9351
Q0159	30.7073	117.5170	.6169	.9344
Q171	31.0237	119.5103	.6190	.9340
Q211	31.0430	116.7565	.7466	.9306
Q0231	31.2762	119.3551	.7272	.9314
Q235	31.0947	118.1047	.7419	.9309
$\alpha =$	.9366			

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Table 3
Reliability Analysis for
Need for Career Information Scores (15 items)

Item	Item Analysis Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Discrimination	α if Item Deleted
Q5	49.9778	82.6017	.4648	.8956
Q13	50.5701	80.1773	.5209	.8940
Q21	49.9172	83.4002	.4705	.8949
Q69	50.2391	79.3002	.6710	.8871
Q101	50.2796	78.1115	.7191	.8850
Q125	49.7960	82.9201	.5817	.8910
Q141	50.3360	81.7400	.5109	.8937
Q149	50.0770	81.7321	.6269	.8893
Q157	50.1109	79.9943	.6876	.8868
Q165	49.9554	83.0081	.5637	.8916
Q181	50.4857	78.4123	.6851	.8864
Q205	50.3166	79.8455	.6169	.8893
Q213	51.1857	82.8189	.4751	.8949
Q229	49.7759	86.8769	.4329	.8960
Q237	50.5070	79.9404	.6192	.8892
$\alpha = .8976$				

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Table 4
Reliability Analysis for
Conflictual Independence/Familial Relationships Scores (15 items)

Item	Item Analysis Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Discrimination	α if Item Deleted
Q1	26.5851	61.7468	.4021	.8785
Q9	27.0405	58.1483	.5198	.8742
Q33	27.8857	59.6401	.6151	.8682
Q41	28.2511	63.3407	.5024	.8738
Q57	27.7731	59.6957	.5940	.8691
Q065	28.0056	61.3791	.5451	.8715
Q73	27.9551	61.8941	.4708	.8746
Q81	27.7430	58.1741	.7081	.8637
Q89	27.7264	59.1368	.5989	.8688
Q129	27.9531	61.9368	.5398	.8719
Q153	27.7623	59.5696	.6097	.8684
Q169	27.9737	62.0085	.5172	.8727
Q194	27.6991	63.5412	.3708	.8785
Q201	27.3926	58.5875	.6047	.8685
Q217	27.9231	62.1920	.4773	.8743
$\alpha =$	.8794			

Table 5
Reliability Analysis for
Career Decision Making Self-Efficacy Scores (18 items)

Item	Item Analysis Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Discrimination	α if Item Deleted
Q70	72.2831	37.3293	.5309	.8225
Q72	72.2963	38.4749	.3817	.8297
Q92	71.8848	38.5367	.4880	.8258
Q96	72.3381	38.1265	.4959	.8248
Q0102	72.1916	38.2837	.4090	.8284
Q118	72.0787	37.9641	.5145	.8240
Q0134	72.0263	38.3762	.4694	.8261
Q0142	71.8547	38.7981	.4797	.8265
Q150	72.1245	37.4042	.4840	.8245
Q152	72.3073	38.4466	.4521	.8267
Q166	72.6815	37.6313	.3018	.8376
Q172	72.6654	38.5744	.2338	.8411
Q174	72.2831	37.2207	.4972	.8238
Q180	72.0386	37.3308	.5710	.8210
Q190	72.4247	35.9999	.4140	.8310
Q198	72.2682	38.0755	.4562	.8262
Q222	72.5727	37.4732	.3732	.8313
Q230	72.2766	37.7953	.5187	.8236

$\alpha = .8355$

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Table 6
Reliability Analysis for
Emotional Independence from Parent/Others Scores (19 items)

Item	Item Analysis Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Discrimination	α if Item Deleted
Q10	54.0719	96.7494	.3173	.8310
Q18	54.7285	98.3781	.3397	.8289
Q26	53.8337	99.0039	.3316	.8292
Q42	53.7951	97.3736	.3336	.8295
Q54	54.2834	98.7447	.2639	.8330
Q58	54.4177	91.9862	.4737	.8225
Q66	53.8961	97.4964	.3754	.8273
Q90	54.9345	91.8896	.5168	.8199
Q0100	54.8676	97.8151	.2745	.8332
Q0114	54.0913	95.0161	.4534	.8235
Q0122	55.0761	94.5425	.4834	.8221
Q138	54.2910	90.8102	.6610	.8128
Q0154	55.1532	94.3609	.4810	.8221
Q162	54.8054	91.7241	.5779	.8168
Q178	55.5471	96.2649	.5013	.8223
Q210	54.4749	95.6721	.4000	.8263
Q218	53.6700	97.5089	.4126	.8258
Q226	55.4187	98.5243	.3902	.8269
Q234	54.5919	97.3769	.3468	.8288

$\alpha = .8331$

Table 7
Reliability Analysis for
Identity Development/Secure with Self Scores (15 items)

Item	Item Analysis Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Discrimination	α if Item Deleted
Q4	56.5711	54.2732	.3302	.8542
Q012	56.5518	49.2404	.5809	.8416
Q20	56.1123	54.6614	.3897	.8521
Q28	57.0624	52.5441	.3628	.8539
Q036	56.7634	50.0243	.5717	.8423
Q044	56.7112	48.5091	.5319	.8453
Q060	56.8635	46.6985	.6262	.8388
Q084	57.0062	49.5835	.5456	.8437
Q108	56.3312	51.4862	.5944	.8426
Q0116	56.4717	53.3854	.3559	.8535
Q148	56.2734	51.0501	.7054	.8388
Q0188	57.0870	49.2588	.4674	.8501
Q196	56.2259	53.2252	.4674	.8486
Q204	56.6118	51.9174	.4949	.8468
Q212	56.3138	53.5692	.4825	.8485
$\alpha = .8556$				

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Table 8
Varimax-rotated Factor Pattern/Structure Coefficients

Item	Factor					
	I	II	III	IV	V	VI
Q3	.72449	.20171	.12699	-.11657	-.00555	-.09990
Q11	.71120	.18083	.04092	-.02230	.01359	-.14577
Q31	.72333	.24633	.12313	-.02657	.15577	-.22733
Q55	.63967	.08145	.27050	-.05196	.15816	-.14899
Q63	.73350	.20889	.11206	.00158	.12317	-.19513
Q71	.57138	.26374	.15016	.00613	.19964	-.07805
Q87	.69071	.21485	.21603	-.04170	.09368	-.20804
Q091	.62035	.22031	.02978	-.05205	-.00548	-.10831
Q0143	.69142	.12885	.04945	-.16780	-.03762	-.18455
Q0147	.56112	.12866	.10031	-.16543	-.00853	-.15613
Q0159	.59243	.21250	-.00691	-.10480	.07936	-.17458
Q171	.67140	.14562	.14880	-.00736	-.00276	-.06371
Q211	.71219	.16089	.18764	-.07697	.20141	-.17922
Q0231	.72597	.14223	.06010	-.19604	-.03599	-.18299
Q235	.71930	.24918	.12423	-.02202	.00196	-.13623
Q5	.11819	.45393	-.03712	.17598	-.09690	-.09354
Q13	.17343	.53673	.12326	-.01021	-.01664	-.11323
Q21	.15900	.48527	-.00917	.05001	-.02424	-.02039
Q69	.26343	.67345	-.00421	.05221	-.05122	-.04839
Q101	.27961	.71666	.03864	.04237	-.11502	.02404
Q125	.18423	.57701	.00898	.25527	.00550	-.03588
Q141	.01371	.62703	-.05107	.01585	.14868	-.11354
Q149	.07179	.68477	-.01161	.17194	.01667	-.00758
Q157	.15062	.72595	.00143	.12630	-.00776	.06144
Q165	.11458	.60107	.04640	.18495	.14745	.02416
Q181	.20870	.69657	.13886	.06806	-.04784	-.03242
Q205	.11669	.66748	.07123	.09607	-.07816	-.01764
Q213	.27801	.47337	.12532	.00726	.00434	.02973
Q229	.06074	.45976	-.00570	.33496	.03550	.10123
Q237	.17482	.67900	-.00093	.00247	.06431	-.02354
Q1	.19709	.01853	.39143	.10084	.10797	-.24718
Q9	.04877	-.04080	.59219	.20910	.11064	-.21565
Q33	.06585	.12966	.65855	-.03870	-.32606	-.13926
Q41	.09061	.08559	.53952	-.20496	-.01643	-.04914
Q57	.08356	-.00811	.65842	-.08952	.23686	-.05488
Q065	.16081	.00142	.53307	-.15965	-.22028	-.14345
Q73	.19578	-.01683	.49790	-.12255	.03616	-.16503
Q81	.08743	.01191	.73613	-.06252	.05690	-.15562
Q89	.01435	.17740	.64448	.00488	-.04028	-.22945
Q129	.01981	-.00547	.60618	-.20705	-.13910	-.05905
Q153	.02637	-.01619	.69929	-.05648	-.01293	-.04122
Q169	.33693	.01060	.54312	-.14681	-.05968	.02842
Q194	.10754	.04566	.40707	-.18586	.02487	-.07888
Q201	.04735	.07547	.64721	-.05089	-.03719	-.13502
Q217	.25521	-.06096	.51075	-.18630	-.00558	.00155

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Q70	-.07731	.02800	-.18386	.54966	-.08775	.07781
Q72	-.20223	-.02623	-.09760	.41991	-.06111	.15359
Q92	.00187	.09111	-.05022	.53283	.00603	.05573
Q96	-.08114	-.00311	-.05471	.53683	-.08488	.25626
Q0102	-.04801	-.07219	-.25476	.46490	-.09704	-.00959
Q118	-.18191	.04343	-.02787	.52589	.04126	.40925
Q0134	-.25598	.08042	-.28238	.46663	-.07587	.04364
Q0142	-.09609	.01035	-.24222	.54147	-.01851	-.04575
Q150	-.15860	.03219	-.04000	.54436	-.13932	-.00818
Q152	-.15997	.14680	-.08203	.49799	.04850	.11739
Q166	.09458	.13612	.04097	.35112	.05519	.05710
Q172	.05942	-.03209	.12645	.35472	-.21549	.03586
Q174	.01450	.13209	.03974	.57866	.08733	.03722
Q180	.01424	.05590	-.03879	.63775	.02405	.17258
Q190	-.01443	.07140	-.06524	.48570	-.08652	-.06503
Q198	-.03381	.21122	-.01625	.51952	-.04509	.05183
Q222	-.03170	.21423	-.01973	.42485	.11876	-.10541
Q230	-.04135	.22313	-.10852	.55183	.05409	.05688
Q10	.20087	.01861	.18063	.16095	.36329	-.13157
Q18	.06690	.11288	-.00097	-.09463	.36633	-.17521
Q26	.02349	.16423	.23196	.16273	.36488	-.17027
Q42	-.03450	-.14196	-.10267	.02448	.43037	-.03531
Q54	.11113	.06513	.01227	.10658	.32368	.01354
Q58	.04296	-.05240	.03422	-.01532	.58067	.00078
Q66	.09780	.15943	-.00351	.08813	.38937	-.29857
Q90	.00317	-.05399	.01788	-.08350	.60896	-.04462
Q0100	-.03359	.00963	-.24726	-.15219	.36992	.07974
Q0114	.15085	-.08178	-.14831	.06914	.54276	.08826
Q0122	-.07758	.05433	.02534	-.18091	.55008	-.11430
Q138	.04753	-.06322	.02759	.00808	.73997	-.04482
Q0154	-.06217	.09127	.04355	-.21053	.56703	.04801
Q162	.10057	-.15472	.06684	-.03851	.68019	-.03484
Q178	.10597	.17742	.24206	-.27864	.52458	-.08332
Q210	.25561	.32293	.04426	-.01193	.39501	-.23738
Q218	-.08141	-.04629	-.10970	.17671	.56509	.08426
Q226	.20607	.11286	.23442	-.15620	.36047	-.28290
Q234	.03242	-.02616	-.14627	-.05654	.45978	.08885
Q4	-.10348	-.30311	.05995	.24595	.03763	.32438
Q012	-.15220	.01511	-.17788	-.09055	-.05492	.67249
Q20	-.03682	.00511	-.23227	.27848	-.03629	.35944
Q28	-.06787	-.03742	-.02967	.27727	.09291	.37628
Q036	-.39301	-.20990	-.16563	.11725	-.08205	.45824
Q044	-.18753	.04889	-.21637	-.03845	-.06231	.59548
Q060	-.27749	-.09651	-.16583	-.05994	-.13594	.65555
Q084	-.18791	-.01270	-.24119	.10153	-.03730	.51562
Q108	-.29800	.00573	-.09589	.34938	-.10068	.54900
Q0116	-.06842	-.17696	-.06042	.26763	-.21919	.33063
Q148	-.25581	-.00515	-.12323	.31249	-.05758	.66827
Q0188	-.05846	-.02956	-.12048	-.01727	-.01387	.58218
Q196	-.12422	.02126	-.22450	.32068	.05013	.41494
Q204	-.28127	-.11074	-.07898	.24959	.03841	.43305
Q212	-.17143	.13378	-.19046	.37442	-.00062	.41177

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Table 9
Correlation Coefficients

Variable	Variables							
	DMANX	CARINFO	CONFLICT	SE	EMOT	IDENTITY	CHANGE	CERTAIN
DMANX	1.0000 (364) p= .						.5098 (358) p=.000	-.6830 (360) p=.000
CARINFO	.4608 (364) p=.000	1.0000 (364) p=.					.2937 (358) p=.000	-.3525 (360) p=.000
CONFLICT	.3707 (364) p=.000	.1221 (364) p=.020	1.0000 (364) p=.				.0874 (358) p=.099	-.1588 (360) p=.003
SE	-.1913 (364) p=.000	.2247 (364) p=.000	-.2502 (364) p=.000	1.0000 (364) p=.			.0048 (358) p=.928	.0777 (360) p=.141
EMOT	.2384 (364) p=.000	.0752 (364) p=.152	.0678 (364) p=.197	-.1110 (364) p=.034	1.0000 (364) p=.		.0894 (358) p=.091	-.1021 (360) p=.053
IDENTITY	-.5292 (364) p=.000	-.1667 (364) p=.001	-.4674 (364) p=.000	.3836 (364) p=.000	-.2254 (364) p=.000	1.0000 (364) p=.	-.2264 (358) p=.000	.3325 (360) p=.000

APPENDIX A

Item Retained for the Career Assessment Diagnostic Inventory

Decision Making Anxiety (15 items)

- Q3 I am scared I will never be able to choose a career
- Q11 I think about changing my major frequently
- Q31 I feel uneasy about making a career decision
- Q55 When I try to choose a career, my stomach and chest feel tight
- Q63 Thinking about a career choice is overwhelming to me
- Q71 I feel anxious about choosing a career
- Q87 I get tense when contemplating which career to choose
- Q91 Choosing a major has been an easy decision for me
- Q143 When discussing career options with others, I feel calm and relaxed
- Q147 I usually do not have a problem choosing what classes to register for
- Q159 I am not worried about my career choice
- Q171 Choosing a career has been the most difficult decision in my life
- Q211 I am afraid to make a career choice because I might choose the wrong one
- Q235 I have difficulties choosing a career because I am overwhelmed by all the information

Need for Career Information (15 items)

- Q5 I need information about the types of companies I would like to work for
- Q13 I need to know the salaries of different types of jobs
- Q21 I need to know what types of career are similar to my values and interests
- Q69 Before making a career decision, I want to gain more insight into the different careers I am exploring
- Q101 Before making a career decision, I need information about different types of jobs
- Q125 Before making a career decision, I would like to know what jobs match my interests and skills
- Q141 Before making a career decision, I need to know which careers match my educational level
- Q149 Before making a career decision, I need to know what type of training is required for different jobs
- Q157 Before making a career decision, I need to read information about the different careers I am interested in
- Q165 Before making a career decision, I need to speak to people who have a job in the career field I am interested in
- Q181 Before making a career decision, I want information on new up and coming careers
- Q205 Before making a career decision, I need to know what types of jobs will exist in the future
- Q213 Before making a career decision, I need to travel to see what types of jobs exist throughout the world
- Q229 Before making a career decision, it is important for me to

- know the advantages and disadvantages of certain careers
Q237 Before making a career decision, I need information about the type of people that possess a job in career fields that I am interested in

Conflictual Independence/Familial Relationships (15 items)

- Q1 I wish I had more independence
Q9 Most of the time my parent(s) are too overprotective
Q33 I wish my parent(s) would get their own lives and leave me alone
Q41 My parent(s) tell me I am too young to make decisions for myself
Q57 I frequently feel like my parent(s) are making decisions for me
Q65 I feel like my parents support my independence and encourage me to think for myself
Q73 I feel like I disappoint my parent(s) often
Q81 My parent(s) pressure me to do things their way
Q89 My parent(s) criticize ideas I have that are different from theirs
Q129 My parent(s) wish that I would be more like them
Q153 My parent(s) are too strict
Q169 I frequently end up in an argument with my parent(s) when we try to talk about my career
Q194 If I did not need my parent's approval, making a career decision would be much easier
Q201 At times I wish my parent(s) would let me make my own decisions
Q217 Since I left for college I tend to argue with my parent(s) more about my future

Career Decision Making Self-Efficacy (18 items)

- Q70 I have the ability to control aspects about my future career
Q72 I am able to make a good decision
Q92 I value a career that will give me personal satisfaction
Q96 I have been successful in the past when I needed to make a decision
Q102 There is no need to choose a career until I am offered a job
Q118 I believe in my ability to succeed
Q134 I have little control over my career choice
Q142 A career choice is not a decision I can make, but someone else will decide for me
Q150 Choosing a career is completely my responsibility
Q152 I believe I can learn how to make a good career choice
Q166 Studying will help me to get a good job
Q172 I have distinct strengths separate from my family and friends
Q174 Successful careers are a result of hard work
Q180 I am certain that I can succeed in school if I choose to do so
Q190 Choosing the right career for me is I decision only I can make
Q198 Choosing the right career takes a certain level of personal maturity

- Q222 It is important to begin planning early for a career
- Q230 Choosing the right career takes a lot of thought and personal exploration

Emotional Independence from Parent/Others (19 items)

- Q10 When I get poor grades I feel like I am letting my parent(s) down
- Q18 I tend to go along with other people's suggestions
- Q26 I dislike it when my parent(s) do not approve of my decisions
- Q42 I visit my parent(s) frequently
- Q54 Aspects of my family determine my career choice
- Q58 I could not survive without my parent(s)
- Q66 It is easier to make a commitment when I believe that others will approve of the commitment I've made
- Q90 After being with my parent(s), I find it difficult to leave
- Q100 I have aspirations for myself that are separate from my parent(s) wishes
- Q114 I rarely ask my parent(s) for advice about choosing a career
- Q122 I feel comfortable choosing a career my parent(s) do not agree with
- Q138 I often ask my parent(s) for approval of my decisions
- Q154 I do not need my parent(s) approval to make a career decision
- Q162 I feel I need to call my parent(s) regularly and ask for their approval/opinion
- Q178 I feel I need my parent(s) approval to make a career decision
- Q210 I need reassurance that I've made the right choice of a career path
- Q218 I think about my parent(s) often
- Q226 I make decisions based upon other people's advice way too often
- Q234 I feel more comfortable talking to my parent(s) than to my friends

Identity Development/Secure with Self (15 items)

- Q4 I am aware of my strengths and weaknesses
- Q12 I want to change who I am
- Q20 I have a good sense of my personal values
- Q28 My beliefs about myself are similar to the beliefs others have about me
- Q36 I am unsure what my abilities are
- Q44 Sometimes I wish I could be someone else
- Q60 Sometimes I wonder if I really know who I am
- Q84 My friends perceive me very differently from how I perceive myself
- Q108 I feel confident with myself
- Q116 [was originally written "I am not always sure what I believe about issues, so I make up my mind based upon other people's opinions"; this item will be re-written to more accurately depict this construct, as follows]
- Q116 Sometimes, I am unsure of exactly who I want to be
- Q148 I am please with who I am
- Q188 I have questioned my beliefs about who I am

Career Assessment: Reliability and Validity -41-

Q196 I am clear about my values

Q204 I understand my personal traits and characteristics

Q212 I have a general sense of who I am